

From glowbugs@theporch.com Fri Feb 28 19:05:12 1997  
Return-Path: <glowbugs@theporch.com>  
Received: from uro (localhost.theporch.com [127.0.0.1])  
by uro.theporch.com (8.8.5/AUX-3.1.1)  
with SMTP id TAA11190;  
Fri, 28 Feb 1997 19:03:30 -0600 (CST)  
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Message-Id: <199703010103.TAA11190@uro.theporch.com>  
Errors-To: ws4s@infoave.net  
Reply-To: glowbugs@theporch.com  
Originator: glowbugs@theporch.com  
Sender: glowbugs@theporch.com  
Precedence: bulk  
From: glowbugs@theporch.com  
To: Multiple recipients of list <glowbugs@theporch.com>  
Subject: GLOWBUGS digest 460  
X-Listprocessor-Version: 6.0c -- ListProcessor by Anastasios Kotsikonas  
X-Comment: Please send list server requests to listproc@theporch.com  
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#### GLOWBUGS Digest 460

Topics covered in this issue include:

- 1) Re: regen headphone useage  
by tomrice@netcom.com (Tom R. Rice)
- 2) Re: Neat WELL BUILT classic regen receiver design found finally  
by rdkeys@csemail.cropsci.ncsu.edu
- 3) Re: More Regenerator Musings.....  
by rdkeys@csemail.cropsci.ncsu.edu

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Date: Thu, 27 Feb 1997 18:07:19 -0800 (PST)  
From: tomrice@netcom.com (Tom R. Rice)  
To: glowbugs@theporch.com (glowbugs)  
Subject: Re: regen headphone useage  
Message-ID: <199702280207.SAA12675@netcom5.netcom.com>

> transformer-coupled audio output amps .... with the phones in series with  
> the HV supply and the plate of the audio tube I feel a lot better with 45 or  
> 90 volts in there versus 250 volts going around my noggin!

You know, I've wondered about that practice of putting  
the cans in series with the B+. I have a precious pair  
of Trimm Featherweights which come from that era.

What bothers me is that I would expect the cans to be

gradually de-magnetized as the connection was made and broken, especially if the DC flow was opposite to the direction of flow which would act to enhance the strength of the permanent magnets in the headset.

I seem to remember that Elmer Osterhoudt (Modern Radio Labs) published a pamphlet on re-magnetizing your cans.

Comments invited; in the meantime, it's always a coupling condenser or output xfmr for me!

73 de WB6BYH

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"Start off every day with a smile and get it over with." --W.C.Fields

Tom R. Rice

tomrice@netcom.com

CIS: 71160,1122

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Date: Wed, 26 Feb 1997 17:22:29 -0500 (EST)

From: rdkeys@csemail.cropsci.ncsu.edu

To: ebjr@worldnet.att.net (Sandy W5TVW)

Cc: rdkeys@csemail.cropsci.ncsu.edu ()

Subject: Re: Neat WELL BUILT classic regen receiver design found finally  
Message-ID: <9702262222.AA102681@csemail.cropsci.ncsu.edu>

> Limiting the set to two bottles, I have a tendency to try the 6U8/6EA8.  
> Pentode RF amp/triode detector, triode AF amp/pentode output stage.  
> The 6U8 pentode should be easily capable of low power loudspeaker  
> operation at about 1/2 watt out or so like the 6AK6/6G6G.

That is a very good idea. Four bottles for the price of two.

Find out what is the most common of the lot in terms of basing diagrams, and then use that as a generic form.

> Limited to only one COMMON tube type, then I'd say the 6BA6. Triode  
> connected even, if you want a triode detector. They are plentiful as  
> everything! I ordered some 6186/6AG5's at .08 each lately. Curious to see  
> what they will do!

Gee, I can't find them around here that commonly. Where were you getting them at 8 pfennigs each? At that price, I could stand a hundred maybe for generic play, although I prefer octals because you can still get the sockets down at the generic refrigeration/industrial supply as octal relay sockets ---- pretty good for breadboarding use.

> I prefer triode detectors. They seem to have easier to control  
> characteristics and don't overload as easy as tetrodes/pentodes. In my  
> '32, '32, '30 SW-3, I have found that the '32 is quite microphonic. The '34  
> seems better. The 1A4P is better yet and seems to perform better on 20  
> meters. They are all poor above 15 mhz. I do remember when I had an ACSW-3  
> (which I traded off stupidly in my high school days!)

I like triodes, and the best I have found is the 76, with the 27 as a close second. The 56 would be next and then they all are about equal after that.

> The best combo was a pair of 6D6's and a '76 audio stage. The 6D6 even  
> worked pretty well with the 10 meter bandsread coil set I had!

6D6/6C6s are good in detector service. The 76 has always been a strong audio tube, but the 6SN7 is not half bad.

> On the "audio reactor".....the BC-221 has a very nice Stancor 250  
> Henry choke in it! I usually buy "junk" BC-221's just to salvage for  
> parts! (Don't tell the purists  
> on the BA reflector about this! They'd strip a gear!).

Of course, I won't. I have picked up several odd chokes that way, and that is fine. The LM choke is only a few henries tho.

> In fact, I'd  
> wondered about using the BC-221 chassis as the basis for a regenny receiver  
> since the main tuning cap  
> has a very slow ratio. Discarding the existing coils of course and going to  
> plug-in ones. I have given up on the idea of trying to make the RF and  
> detector tanks "track"  
> as on the ham bands, this is really an exercise in futility. In that I would  
> have a tendency to go 6K7 or 6SK7 RF, 6SN7 det/1st audio, 6G6G audio out.

It would do nicely. I was thinking of the same thing on the chassis of the last gasp of the BC-221 (AN/URM-32). I got one for 3 bucks recently and was trying to make a vfo out of it -- not enuf oomph, but it would make a nice regen detector deck, with room to spare.

> 73,  
> E. V. Sandy Blaize, W5TVW

Fire up on 160M tonight at about 11-12pm your time. I would guess after the late news.....

73/ZUT DE NA4G/Bob UP

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Date: Fri, 28 Feb 1997 15:46:15 -0500 (EST)  
From: rdkeys@csemail.cropsci.ncsu.edu  
To: ampruss@hits.net  
Cc: rdkeys@csemail.cropsci.ncsu.edu (), glowbugs@theporch.com  
Subject: Re: More Regenerator Musings.....  
Message-ID: <9702282046.AA107113@csemail.cropsci.ncsu.edu>

> Bob;  
> Greetings from a wet and windy Hawaiian island. I've been following the  
> Regen thread with great interest for several weeks now. Forgive my  
> ignorance but what is this golden thread RAL receiver you folks elude to  
> from time to time? Please point me in the right schematic direction.

Greetings, matey! The RAL schematics are in the BA archives at  
[ftp.theporch.com/pub/mailling-lists/boatanchors/ral\\*.\\*](ftp.theporch.com/pub/mailling-lists/boatanchors/ral*.). The schematic  
and spare dial card images are there. Someday, I hope to get the manual  
online there, also.

The RAL is the best of the commercial/military regenerative receivers.  
It was designed and built by RCA for the Navy starting about 1936 on  
throughout WWII. It was used on vessels until the Cuban Missile Crisis  
and later, particularly diesel subs and destroyers and the like (lesser  
vessels mostly, although they were carried in secondary installations aboard  
battleships, etc.). It has two stages of tuned RF, a pentode detector,  
two stages of audio, and audio derived AGC, plus the finest audio filters  
ever put into a receiver of the tube era. The filters are passband at  
1400hz plus tuneable peaked at any frequency from about 300 to 1350 hz.  
The selectivity is such that without filters, it will pass about 2khz  
maximum and with the filters it passes about a 200 cycle peak tuned  
wherever you want it. Most folks consider it a dawg, but I have been  
using it every day for over 20 years, and it puts modern rigs to shame,  
until you get to the R-388 and R-390 class gear. Modern sandystate gear  
may be more sensitive, but not any better on CW, and they tend to be  
very prone to overloading from nearby sigs. The RAL handles this much  
better than most receivers, until you get R-390 class. Alas, the dial is  
nil, with only a 0-1000 logging scale. It is heavy, the ugliest thing since  
spark sets, but for me it runs like a striped arsed ape. It is not that  
bad on CW contests even, but is a 5 handed operation to tune quickly.  
I consider it a true BA sleeper, with a niche for the diehard CW folks.  
It receives sideband quite well, but clips the sidebands off of AM (like  
listening to AM through a 1.5khz ssb filter.

There ought to be at least a couple of dozen RAL's around the island  
hams there that you could get your hands on, would be my guess, if you  
checked around some. Mostly they sit in the sheds, garages and attics.

> IMHO, the hardest thing to incorporate the (quite) 1S4/1U4/3S4 etc...  
 > pentodes into the proliferation of separate indirectly heated cathode  
 > tube type circuits is the lack of specifics on biasing the negative  
 > heater pin (usually pin 1) so that it can be used as a cathode. More  
 > uncertainty, Pin 1 is (in most cases) internally attached to the screen  
 > grid #3 and is available at pin #5. Typical tube geometry seems to  
 > indicate that now the raised (biased) cathode is also nearer to the  
 > plate and not the control grid #1. Understanding of course, that pin 7  
 > is the usual A+. All I have gleaned out of all I have read to address  
 > this design idea is to bring the -B into the chassis with an insulated  
 > point that in turn is shunted to chassis ground with a noninductive low  
 > value (what value?) resistor. Then run a separate combined A-, B- bus  
 > from the unchassis grounded point of the shunt resistor to all the pin  
 > #1s on all the tubes. Perhaps a 2.7k variable resistor in series with a  
 > say 270 ohm fixed (limiting) resistor to chassis ground as a means to  
 > adjust the hot filament cathode bias value shunt.

Well, you really don't need to bias the typical regenerative detectors  
 using these tubes. At lower voltages, you don't even need to bias the  
 audio. At maxed voltages (90vdc) you might use some C- bias on the  
 audio stages, if you got out of hand distortion. Typically, for your  
 ECO application, which is what that thing is --- J.B. Dow's Electron  
 Coupled Oscillator from about 1930 --- Proc. I.R.E, and QST about 1932  
 or 1933 or so, the common thing to do is to float the filaments up from  
 ground via RF chokes and couple to the coil tap using a low impedance  
 capacitor (typically 0.001 or 0.01uF), OR, wind the filament lines  
 bifilarly up to the tap to raise them above RF ground (the best way  
 to do it, and the way Dow did it best, and the messiest way to do  
 for regen plug-in coils). That is the best way to handle the problem  
 of a cathode tap up from rf ground. Alternatively, you can ground  
 the cathode and use the low side of ground as the tickler connection  
 to the screen grid, to complete the oscillatory circuit. This is  
 easier to do, but the first way is 'supposed' to work better (I dunno,  
 since I don't use battery tubes in ECO circuits although I have this  
 803 I have been saving for a Dow ECO glowbug transmitter at about 50  
 watts input.....(:+}}.....).

> The reason for all  
 > this bandwidth is because I found that the best regen feedback scheme,  
 > is where we use a low point inductive tap on the L in the LC tuned  
 > circuit. A second tap placed a few turns above this point also clears  
 > up the squashed up band spread. I can't take any credit for this later  
 > design reasoning for it is well defined in an article by David Newkirk  
 > WJ1Z in QST Sept 1992 Pg.35 through 39. And it works. Only I sure would  
 > like to use those LV Htr. tubes. With 4 (3S4s), were only looking at  
 > 200 mA. What say Bob and you other glowbug buffs with similar mind bent  
 > experience. Tnx es Aloha , Peter, KH6CTQ

The design dates from the 1930's and is directly traceable to Dow's ECO designs using 50 watt tubes. Well, try it, but for the first iteration I would try the tap at RF ground and raise the screen grid up from ground (suitably choked and/or bypassed) and use the low side of the tap as the RF tickler point. If you are a real diehard, try Dow's original circuit.

LV heater tubes work fine. I prefer indirectly heated types for serious work and triodes for fun filamentary work (although my 1925 2-tuber has been holding its own with the best of them on 160M lately, even on an indoor antenna 10 feet long!). Triodes are a lot less finicky, and even make great RF stages if you don't pressure them so hard they go into oscillation.

What say.....``GO FOR IT!''

73/ZUT DE NA4G/Bob UP

You and ol' Jeffer oughtta get together since you are both out on the island (great for a ground system .....(:+{}}, just watch out for flowing lava, tourists, and great whites, right? Where are all the RAL's these days, out there?.....(:+{}}).

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End of GLOWBUGS Digest 460

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